FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M07893A	Client:	Alaskan Copper Works
Date Received:	11/03/11	Project:	Percent of Acid M07893, F&BI
111054			
Date Extracted:	11/08/11	Lab ID:	111054-01 x1000
Date Analyzed:	11/08/11	Data File:	111054-01 x1000.064
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	130 vo	60	125
Indium	91	60	125
Holmium	87	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	7,750,000 J
Nickel	7,400,000 J
Copper	905,000 J
Zinc	48,000 J, ca
Arsenic	<1,000
Silver	<1,000
Cadmium	3,060
Lead	8,510
Iron Screen	22,200,000 J, ve

Analysis For Total Metals By EPA Method 200.8

Client ID:	M07893A	Client:	Alaskan Copper Works
Date Received:	11/03/11	Project:	Percent of Acid M07893, F&BI 111054
Date Extracted:	11/08/11	Lab ID:	111054-01 x10,000
Date Analyzed:	11/08/11	Data File:	111054-01 x10,000.070
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125
Indium	86	60	125
Holmium	83	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	10,500,000
Nickel	9,970,000
Copper	1,330,000
Zinc	64,400 ca
Arsenic	<10,000
Silver	<10,000
Cadmium	<10,000
Lead	<10,000
Iron Screen	31,400,000

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M07893B	Client:	Alaskan Copper Works
Date Received:	11/03/11	Project:	Percent of Acid M07893, F&BI
111054			
Date Extracted:	11/08/11	Lab ID:	111054-02 x10,000
Date Analyzed:	11/08/11	Data File:	111054-02 x10,000.065
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125
Indium	87	60	125
Holmium	84	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	6,430,000
Nickel	5,940,000
Copper	903,000
Zinc	35,600 ca
Arsenic	<10,000
Silver	<10,000
Cadmium	<10,000
Lead	<10,000
Iron Screen	24,100,000

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M07893C	Client:	Alaskan Copper Works
Date Received:	11/03/11	Project:	Percent of Acid M07893, F&BI 111054
Date Extracted:	11/08/11	Lab ID:	111054-03 x10,000
Date Analyzed:	11/08/11	Data File:	111054-03 x10,000.066
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	60	125
Indium	87	60	125
Holmium	84	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	14,100,000
Nickel	17,400,000
Copper	11,400,000
Zinc	76,800 ca
Arsenic	11,100
Silver	<10,000
Cadmium	<10,000
Lead	11,100
Iron Screen	37,300,000

Analysis For Total Metals By EPA Method 200.8

Client ID:	M07893D	Client:	Alaskan Copper Works
Date Received:	11/03/11	Project:	Percent of Acid M07893, F&BI 111054
Date Extracted:	11/08/11	Lab ID:	111054-04 x10,000
Date Analyzed:	11/08/11	Data File:	111054-04 x10,000.067
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	86	60	125
Indium	80	60	125
Holmium	77	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	4,930,000
Nickel	6,810,000
Copper	6,850,000
Zinc	25,000 ca
Arsenic	<10,000
Silver	<10,000
Cadmium	<10,000
Lead	<10,000
Iron Screen	19,900,000

Analysis For Total Metals By EPA Method 200.8

Client ID:	M07893E	Client:	Alaskan Copper Works
Date Received:	11/03/11	Project:	Percent of Acid M07893, F&BI 111054
Date Extracted:	11/08/11	Lab ID:	111054-05 x10,000
Date Analyzed:	11/08/11	Data File:	111054-05 x10,000.068
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	89	60	125
Indium	81	60	125
Holmium	79	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	9,410,000
Nickel	8,850,000
Copper	1,220,000
Zinc	55,600 ca
Arsenic	<10,000
Silver	<10,000
Cadmium	<10,000
Lead	<10,000
Iron Screen	30,500,000

Analysis For Total Metals By EPA Method 200.8

Client ID:	M07893F	Client:	Alaskan Copper Works
Date Received:	11/03/11	Project:	Percent of Acid M07893, F&BI
111054			
Date Extracted:	11/08/11	Lab ID:	111054-06 x10,000
Date Analyzed:	11/08/11	Data File:	111054-06 x10,000.069
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125
Indium	87	60	125
Holmium	84	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	10,300,000
Nickel	12,900,000
Copper	9,370,000
Zinc	53,400 ca
Arsenic	<10,000
Silver	<10,000
Cadmium	<10,000
Lead	<10,000
Iron Screen	29,800,000

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Alaskan Copper Works
Date Received:	Not Applicable	Project:	Percent of Acid M07893, F&BI 111054
Date Extracted:	11/08/11	Lab ID:	I1-772 mb
Date Analyzed:	11/08/11	Data File:	I1-772 mb.036
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	85	60	125
Indium	84	60	125
Holmium	83	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Nickel	<1
Copper	<1
Zinc	<1
Arsenic	<1
Silver	<1
Cadmium	<1
Lead	<1
Iron Screen	<1

Date of Report: 11/11/11
Date Received: 11/03/11
Project: Percent of Acid M07893, F&BI 111054
Date Extracted: NA
Date Analyzed: 11/10/11

RESULTS FROM THE ANALYSIS OF PRODUCT SAMPLES FOR SPECIFIC GRAVITY @ 15.56 °C

Sample ID Laboratory ID	Specific Gravity
M07893A 111054-01	1.20
M07893B 111054-02	1.11
M07893C 111054-03	1.30
M07893D 111054-04	1.12
M07893E 111054-05	1.16
M07893F 111054-06	1.22

Date of Report: 11/11/11
Date Received: 11/03/11
Project: Percent of Acid M07893, F&BI 111054
Date Extracted: NA
Date Analyzed: 11/07/11

RESULTS FROM THE ANALYSIS OF AQUEOUS SAMPLES FOR PERCENT ACID

Sample ID Laboratory ID	Percent Acid
M07893A 111054-01	7.4
M07893B 111054-02	3.6
M07893C 111054-03	11
M07893D 111054-04	3.6
M07893E 111054-05	6.0
M07893F 111054-06	8.4

Date of Report: 11/11/11
Date Received: 11/03/11
Project: Percent of Acid M07893, F&BI 111054

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chromium	ug/L (ppb)	20	104	107	66-135	3
Nickel	ug/L (ppb)	20	105	109	67-134	4
Copper	ug/L (ppb)	20	105	109	66-134	4
Zinc	ug/L (ppb)	50	106	108	57-135	2
Arsenic	ug/L (ppb)	10	103	108	55-128	5
Silver	ug/L (ppb)	5	105	109	64-136	4
Cadmium	ug/L (ppb)	5	105	115	66-135	9
Lead	ug/L (ppb)	10	107	113	67-135	5

Date of Report: 11/11/11
Date Received: 11/03/11
Project: Percent of Acid M07893, F&BI 111054

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AQUEOUS SAMPLES FOR SPECIFIC GRAVITY @ 15.56 °C

Laboratory Code: 111054-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Specific Gravity	1.20	1.19	1	0-2

Date of Report: 11/11/11
Date Received: 11/03/11
Project: Percent of Acid M07893, F&BI 111054

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF AQUEOUS SAMPLES FOR PERCENT ACID

Laboratory Code 103136-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Percent Acid	8.4	8.4	0	0-20

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

~~111055~~ 111054 **SAMPLE CHAIN OF CUSTODY** ME 11-03-11 AI3

Page # 1 of 2

Send Report To: Gerald Thompson
Company: Alaskan Copper Works
Address: 628 S. Hanford St.
City, State, ZIP: Seattle WA 98134
Phone #: 206-571-6633 Fax #: 206-387-4305

SAMPLERS (signature):
PROJECT NAME/NO.: % of Acid
PO #: M07893
REMARKS:

TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH 7 days
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will add with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Cr Cu Ni Zn	As Ag Cd Pb	FE	% of Acid	Spec Gravity	Notes
M07893A	01	11/3/11	12:30	HNO3	1							X	X	X	X	X	
Large Acid tank																	
M07893B	02	11/3/11	12:30	HNO3	1							X	X	X	X	X	
Large Rinse Tank																	
M07893C	03	11/3/11	12:30	HNO3	1							X	X	X	X	X	
Small Acid Tank																	
M07893D																	
Small Rinse Tank	04	11/3/11	12:30	HNO3	1							X	X	X	X	X	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Gerald Thompson	ACW	11/3/11	1:35 PM
Received by:	DOVO	F+BI	"	"
Relinquished by:				
Received by:				

Samples received at 16 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
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111054

SAMPLE CHAIN OF CUSTODY ME 11-03-11 AI3

Page # 2 of 2

Send Report To Geneva Thompson
Company ALASKAN Copper Works
Address 628 S. Hanford St
City, State, ZIP Seattle WA 98134
Phone # 206-571-6033 Fax # 206-382-4309

SAMPLERS (signature)
PROJECT NAME/NO. % of Ail
PO # M07893
REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH 7 days
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Cu, Cu, Mo, Zn	As, Ag, Cd, Pb	FE	% of Ail	Spec. Gravity	Notes
M07893E	05	11/3/11	12:30	HW03	1							X	X	X	X		
50/50 Large tank																	
M07893F	06	11/3/11	12:30	HW03	1							X	X	X	X	X	
50/50 Small Tank																	

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Geneva Thompson	ACW	11/3/11	1:35 pm
Received by:		DOD	FXBT	11	11
Relinquished by:					
Received by:					

Samples received at 16 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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3012 16th Avenue West
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e-mail: fbi@isomedia.com

November 11, 2011

Gerald Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

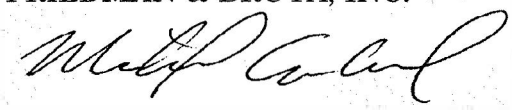
Dear Mr. Thompson:

Included are the results from the testing of material submitted on November 3, 2011 from the Percent of Acid M07893, F&BI 111054 project. There are 14 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
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